

Congruent Chords, Parallel Chords and Perpendicular Bisectors

<http://www.mathwarehouse.com/geometry/circle/chord-of-circle.php>

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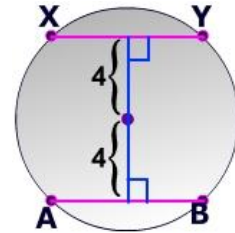
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Theorems

1) If two chords are equidistant from the center, then the chords _____.

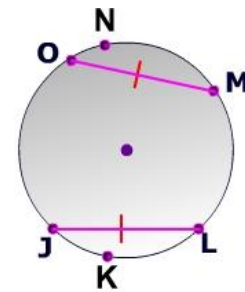
Corollary: Congruent chords are _____ from the center



2) The perpendicular bisector of a chord contains the _____

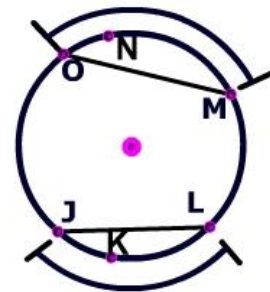
3) If two different chords, intercept congruent arcs, then

ex. therefore $\underline{\quad} \cong \underline{\quad}$



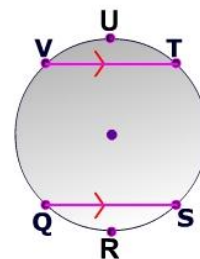
Corollary

If $ONM \cong JKL$, then



4) Parallel chords

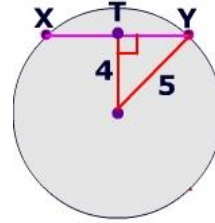
ex. $VT \parallel QS$, therefore



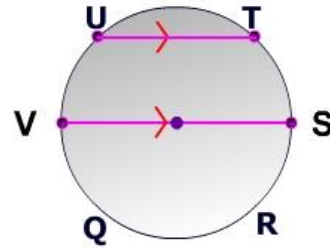
Model Problems

1) If the distance from the center of the circle to \overline{XY} is 4, what is the measure of

- 1) \overline{TY}
- 2) \overline{XY}

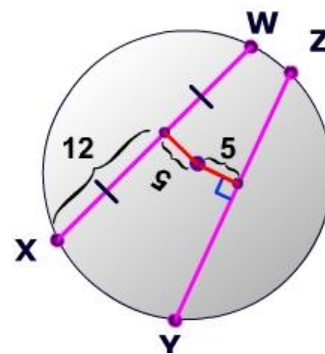


2) If $\angle UT = 30^\circ$, what is the measure of $\angle UV$?

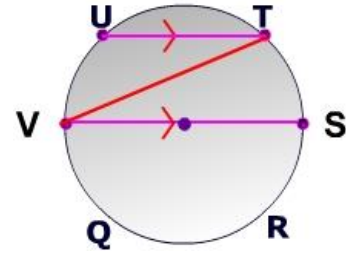


3) What is the radius of the circle on the right if the distance from the center to either chord is 5?

4) What is the length of \overline{YZ} ?



5) $m\angle UTV = 30^\circ$, what is the measure of \widehat{TS} ?



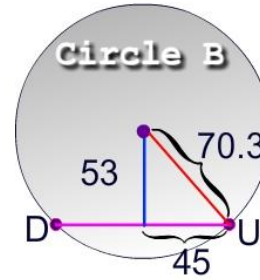
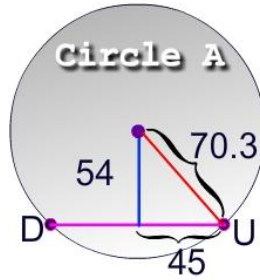
6) What is the measure of \widehat{UT} ?

Part II

<p>In the picture on the right, the chords are equidistant from the center of the circle whose radius is 25</p> <p>1) How large is X?</p> <p>2) What is the length of either of the chords?</p>	
<p>The chords in the circle on the right are equidistant from the center of the circle.</p> <p>3) What is the measure of the radius?</p>	

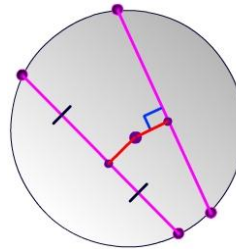
Think-Pair-Share #1

In only one of the two circles is the line a perpendicular bisector of \overline{DU} . Which circle contains the perpendicular bisector and **most importantly explain why.**



Think-Pair-Share: #2

Must the two chords on the right be congruent? Explain your answer



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